REMARKS

The Applicants have carefully considered the office action dated December 20, 2010. By way of this Response, claims 1, 17, 25 and 37 have been amended, and claims 9-13, 15, 16 and 40-42 have been canceled. Claims 1-5, 7, 8, 17-21, 23-29, 31-37 and 39 are pending, of which claims 1, 17, 25 and 37 are independent. The Applicants respectfully submit that all claims are fully supported and that no new matter has been added. In view of the foregoing amendments and the following remarks, the Applicants respectfully request reconsideration of this application.

The Rejections under 35 U.S.C. §112, Second Paragraph

The office action rejected claims 9-13, 15 and 16 under 35 U.S.C. §112, second paragraph as allegedly indefinite.

By way of this response, claims 9-13, 15 and 16 have been canceled. Thus, for at least the foregoing reasons, the Applicants respectfully submit that the rejections under 35 U.S.C. §112, second paragraph, be withdrawn.

The Rejections under 35 U.S.C. §101

Claims 37, 39 and 40-42 were rejected under 35 U.S.C. §101 as directed to non-statutory subject matter. The office action dated December 20, 2010 states that, for a method to be considered a "process" under 35 U.S.C. §101 (i.e., for a method to be statutory), it must be tied to a particular machine or transform a particular article to a different state or thing. *See office action*, page 4, item 7. Claims 37 and 39 are method claims and the Applicants respectfully submit that such claims are tied to particular machines. In particular, independent claim 37 is tied to, in part, a base segmentation tree defining module and a substitute split value determining module to perform the claimed procedures.

The office action refers to claim 37 as reciting "in a computer system" rather than correctly reciting the particular structure of "a base segmentation tree defining module" or "a substitute split value determining module." The Applicants respectfully submit that, unlike a general computer system, independent claim 37 refers to structure having particularity.

Further, the recitation of a particular machine is consistent with guidelines proffered by the Federal Register (see *Federal Register*, Volume 75, No. 143, July 27, 2010).

Additionally, claim 37 recites, in part, "receiving, with a base segmentation tree defining module" and "receiving, with a substitute split value determining module." Accordingly, independent claim 37 recites a machine or apparatus that implements the steps of the method, which is also one of several relevant factors to be considered in a method claim. See *Federal Register*, at page 43925, center column.

The Applicants respectfully submit that the claims clearly meet the first prong of *Bilski's* machine-or-transformation test because the methods of these claims are tied to a particular machine and recite structure that implements the steps of the method. Therefore, the claims recite statutory subject matter. Accordingly, withdrawal of the rejections under 35 U.S.C § 101 is respectfully requested.

The Rejections Under 35 U.S.C. §103(a)

In the office action, claims 1-5, 7-13, 15-21, 23-29, 31-37 and 39-42 were rejected as being unpatentable over Miller et al. (U.S. Patent Application No. 2002/0184077 A1, hereinafter "Miller") in view of Heckerman et al. (U.S. Patent No. 6,742,003, hereinafter "Heckerman"). The Applicants respectfully traverse this rejection.

Claim 1

Independent claim 1 recites, *inter alia*, generating substitute split values for each alternative level variable in each subsequent node of a substitute level tree using a base level data set and an alternative level data set so that each substitute split value in the substitute level tree has a percentage split that is equal to each corresponding base level value in a base level segmentation tree.

Neither Miller nor Heckerman teaches or suggests generating substitute split values for each alternative level variable in each subsequent node of a substitute level tree using a base level data set and an alternative level data set so that each substitute split value in the substitute level tree has a percentage split that is equal to each corresponding base level value in a base level segmentation tree. Thus, no combination of these references can result in such a recitation.

Miller describes a method for classifying consumers in clusters of similar behavioral and demographic characteristics. *Miller*, Abstract. Consumer cluster sets are generated by generating classification trees based on demographic and behavioral data, in which consumers in each cluster have substantially similar behavioral and demographic characteristics to each other, but different behavioral and demographic characteristics from consumers in other clusters. *Miller*, paragraphs [0018] and [0019]. To identify an optimal combination resulting in a set of terminal nodes, Miller employs a partitioning program to optimize a segmentation based on behavioral and demographic factors. *Miller*, paragraph [0020].

The Applicants respectfully submit that Miller fails to teach or suggest generating substitute split values so that each substitute split value in a substitute level tree has a percentage split that is equal to each corresponding base level value in a base level segmentation tree. However, the office action states that Miller describes calculating substitute split values and maintaining a percentage split value in connection with a classification tree shown in FIG. 4 of Miller. More specifically, the office action states that nodes 2 and 3 of FIG. 4 represent [an] equal percentage split using population node 1. See *office action*, page 6. However, further review of FIG. 4 and paragraphs [0021] and [0022] that describe FIG. 4 make no reference to a split value, make no reference to a percentage split, and make no reference to a percentage split in view of a corresponding base level value. Instead, Miller describes that a population node may be split into populations at Node 2 and Node 3 based on a first decision (i.e., "Decision 1" shown in FIG. 3), and that the same population node (i.e., "Node 1" shown in FIG. 4) may be split into populations at Node 2 and Node 3 based on a different decision (i.e., "Decision 5" shown in FIG. 4). In other words, Miller does not describe that such resulting nodes have a particular value with respect to any other decision tree, or generating split values in a manner that results in a particular percentage split and, instead, focus on one or more varying decisions that may be used to split the population node. Accordingly, Miller fails to teach or suggest generating substitute split values so that each substitute split value in a substitute level tree has a percentage split that is equal to each corresponding base level value in a base level segmentation tree.

Additionally, Miller fails to teach or suggest generating substitute split values for each alternative level variable in each subsequent node of a substitute level tree using a base level data set and an alternative level data set. Instead, Miller states that the classification tree of

FIG. 3 and the classification tree of FIG. 4 employ the same population in Node 1. *Miller*, paragraphs [0021] and [0022]. Unlike generating substitute split values using a base level data set and an alternative level data set, Miller splits the same population based on a different decision. Accordingly, Miller necessarily fails to teach or suggest generating substitute split values for each alternative level variable in each subsequent node of a substitute level tree using a base level data set and an alternative level data set, as recited in claim 1.

Heckerman also fails to teach or suggest generating substitute split values for each alternative level variable in each subsequent node of a substitute level tree using a base level data set and an alternative level data set so that each substitute split value in the substitute level tree has a percentage split that is equal to each corresponding base level value in a base level segmentation tree.

Heckerman describes data analysis in view of access requests for hundreds of web pages and the corresponding difficulty due to that volume. *Heckerman*, 1:30-37. To reduce this difficulty, Heckerman describes categorizing users by common demographics and common web page access patterns using classification and clustering techniques. *Id.* at 1:37-41. Despite the wealth of useful information provided by gathering voluminous consumer data and the corresponding targeted advertising benefits, resulting category data lacks simplicity for business managers that must make marketing decisions. *Id.* at 3:8-27. Heckerman describes an interactive cluster visualization tool to address these issues and dynamically reduces a depth of a hierarchy to provide meaningful visual results. *Id.* at 4:30-34 and 4:50-53.

In the event the hierarchical map includes base categories deemed similar, Heckerman adds a combined category (see *Heckerman*, 20:32-45), but fails to teach or suggest generating substitute split values in a substitute level tree having a percentage split that is equal to each corresponding base level value in a base level segmentation tree. Unlike a percentage split that is equal to each corresponding base level value in a base level segmentation tree, as recited in claim 1, Heckerman describes calculating a similarity between categories via a Monte Carlo method that reveals a relative distance between each category. *Heckerman*, 18:1-15, Equation (5a), and 20:45-49.

Additionally, while Heckerman describes calculating a similarity of base categories, such base categories are with reference to one hierarchical map having a tree structure that

includes a node for each base category along with nodes representing combinations of similar categories. *Heckerman*, 19:47-49 and 5:10-14. In other words, unlike generating substitute split values using a base level data set and an alternative level data set, Heckerman provides a category visualization system using a set of incoming data records (*Id.* at 4:61-65) absent any concern for a data set having differing levels. Using the dataset, Heckerman merges segment groups therein to form a (simplified) hierarchy (Id. at 22:1-8), but Heckerman fails to teach or suggest generating substitute split values using a base level data set and an alternative level data set.

Accordingly, at least because Miller fails to teach or suggest generating substitute split values for each alternative level variable in each subsequent node of a substitute level tree using a base level data set and an alternative level data set so that each substitute split value in the substitute level tree has a percentage split that is equal to each corresponding base level value in a base level segmentation tree, no combination of Miller and Heckerman can result in the recited subject matter. For at least the reasons discussed above, the Applicants maintain that Miller and Heckerman are references that, either alone or in combination, cannot render the claimed subject matter obvious. Reconsideration is respectfully requested.

Claims 17, 25, and 37

The Applicants also submit that independent claims 17, 25 and 37 are allowable over the art of record.

Claim 17

Independent claim 17 relates to a software system to execute on a computer system for segmenting a population and recites, in part, determining substitute split values for each alternative level variable in each subsequent node of a substitute level tree using a base level data set and an alternative level data set so that each substitute split value in the substitute level tree has a percentage split that is equal to each corresponding base level value in the base level segmentation tree. The Applicants respectfully submit that the cited art fails to teach or suggest such a system, as recited in claim 17.

Claim 25

Independent claim 25 relates to a machine accessible medium having instructions stored thereon and recites, in part, generating substitute split values for each alternative level variable in each subsequent node of a substitute level tree using a base level data set and an alternative level data set so that each substitute split value in the substitute level tree has a percentage split that is equal to each corresponding base level value in a base level segmentation tree. The Applicants respectfully submit that the cited art fails to teach or suggest such a machine accessible medium, as recited in claim 25.

Claim 37

Independent claim 37 relates to a computer implemented method to segment a population and recites, in part, generating alternate level variables based on a base level data set and an alternate level data set so that each alternate level value in a second segmentation tree has a percentage split that is equal to each corresponding base level variable in a first segmentation tree. The Applicants respectfully submit that the cited art fails to teach or suggest such a computer implemented method, as recited in claim 37.

For at least the foregoing reasons, independent claim 1, 17, 25 and 37, and claims dependent therefrom, are allowable over the cited art.

Conclusion

In view of the foregoing, the Applicants respectfully submit that this application is in condition for allowance and requests reconsideration of this application and an early favorable action on the merits.

Before closing, the Applicants note that at least the following amendments are either broadening or clarifying and, thus, not necessary for patentability:

1. The relocation of "with a base segmentation tree defining module" in claim 1;
2. The removal of "population" in claims 1, 17 and 25;
3. The removal of "at" and "having" in claims 1, 17 and 25;
4. The removal of "the base level population" and "to create a substitute level tree having a substitute precision different from the base precision" in claim 1;
5. The removal of "at the first top level node" and "at the second top level node" in claims 1, 17 and 25;
6. The removal of "the substitute split value determining module to calculate the substitute split values that maintain a percentage split value of the substitute level tree that is equal to a percentage split value of the base level population segmentation tree" in claims 1 and 17;
7. The removal of "subsequent nodes of the base level population segmentation tree to create" in claim 17;
8. The removal of "the base level population segmentation tree to create" in claim 25;
9. The removal of "by calculating the substitute split values to maintain a percentage split value of the substitute level tree that is equal to a percentage split value of the base level population segmentation tree" in claim 25; and
10. The replacement of "a" with "the" in claim 37.

The above noted amendments are either broadening, or are merely clarifying in that the amended claims are intended to state the same thing as the claim was intended to state prior to amendment (i.e., to have the same scope both before and after the amendments). Consequently, these broadening or clarifying amendments do not give rise to prosecution

history estoppel or limit the scope of equivalents of the claims under the doctrine of equivalents.

In general, the office action makes various statements regarding the claims and the cited references that are now moot in light of the above. Thus, the Applicants will not address such statements at the present time. However, the Applicants expressly reserve the right to challenge such statements in the future should the need arise (e.g., if such statements should become relevant by appearing in a rejection of any current or future claim).

Reconsideration of the application and allowance thereof are respectfully requested. In the event that the Examiner would like to discuss the aforementioned claims, or any other matter, the Examiner is invited to contact the undersigned representative at the telephone number set forth below.

The Commissioner is hereby authorized to refund any overpayment and charge any deficiency in the amount paid in connection with this paper or any additional fees which may be required during the pendency of this application under 37 CFR 1.16 or 1.17 to Deposit Account No. 50-2455. In addition, if a petition for an extension of time under 37 CFR 1.136(a) is necessary to maintain the pendency of this case and is not otherwise requested in this case, the Applicants request that the Commissioner consider this paper to be a petition for an extension of time and authorizes the Commissioner to charge the fee as set forth in 37 CFR 1.17(a) corresponding to the needed extension of time to Deposit Account No. 50-2455.

Respectfully submitted,

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